



# UNITED STATES PATENT AND TRADEMARK OFFICE

LEN  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,717	03/17/2004	Haruko Kawakami	016907-1623	1861
22428	7590	03/09/2007	EXAMINER	
FOLEY AND LARDNER LLP			RASHID, DAVID	
SUITE 500			ART UNIT	PAPER NUMBER
3000 K STREET NW			2609	
WASHINGTON, DC 20007				
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE		DELIVERY MODE	
3 MONTHS	03/09/2007		PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/801,717	KAWAKAMI, HARUKO
	Examiner	Art Unit
	David P. Rashid	2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_.  
 2a) This action is FINAL. 2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-9 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_ is/are allowed.  
 6) Claim(s) 1-9 is/are rejected.  
 7) Claim(s) \_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 30 July 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 3/17/2004.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_.

Art Unit: 2609

## **DETAILED ACTION**

All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - (i) Page 1, line 24 contains a grammatical error – suggest changing “methods has delayed” to “methods are delayed”; and
  - (ii) All mentioning of the phrase “as regards” throughout the specification is a possible grammatical error – suggest changing phrase to “regarding”.

Appropriate correction is required.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Art Unit: 2609

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 2 and 3** are rejected under 35 U.S.C. 102(b) as being anticipated by Iwamura (US 2002/0104003 A1).

Regarding **claim 1**, Iwamura discloses an image processing method for adding information to image data (“...a digital watermark processing apparatus...”, paragraph [0019], line 3 wherein the information is a digital watermark), comprising:

subjecting the image data to a predetermined process in accordance with a characteristic of the information, before the information is added (“Hence, in this embodiment, even in the same category of purpose of use, i.e., “print”, the server 602 selectively uses a digital watermark corresponding to the type of printer, thus building a system that can effectively exploit the characteristics of digital watermarks.”, paragraph [0182], line 9 in regards to the sixth embodiment of the invention. The predetermined process is determining which frequency to embed the watermark (and hence “in accordance with a characteristic of the information”) based on frequency components lost by the selected printer during printing as disclosed further in claim 2.);

Art Unit: 2609

adding the information to the image data that has been subjected to the predetermined process (Steps S902 and S905 in FIG. 10 depict embedding the digital watermark for each separate printer in the sixth embodiment of the invention.); and

extracting the information from the image data to which the information has been added (It is inherent that from steps S903 and S906 in FIG. 10 disclosing the action of sending the image to each separate printer, the embedded watermark will be “extracted” upon printing.).

Regarding **claim 2**, Iwamura discloses the image processing method according to claim 1, wherein the information is a frequency component (“For example, in an LBP, since a laser beam has undergone pulse-width modulation, high-frequency components in the main scan direction of the laser beam are readily lost from the printed image. For this reason, a digital watermark is embedded in frequency components other than those lost by the print process. By contrast, since high-frequency components tend to remain on a printout by an ink-jet printer, a digital watermark can be embedded in the high-frequency components.”, paragraph[0182], line 14 regarding the sixth embodiment.).

Regarding **claim 3**, Iwamura discloses the image processing method according to claim 1, wherein the predetermined process is a process for varying a response by frequency (refer to reference cited in claim 2).

Art Unit: 2609

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamura (US 2002/0104003 A1) and Macy et al. (US 6,823,455 B1)

While Iwamura discloses the image processing method according to claim 1, Iwamura does not teach wherein the predetermined process eliminates, from frequency characteristics of the image data, a frequency characteristic that is possibly confused with the information.

Macy et al. teaches an image processing method (“...a platform and corresponding method to produce and embed a digital watermark having enhanced invisibility, detection reliability, and/or robustness.”, column 4, line7), wherein the predetermined process eliminates, from frequency characteristics of the image data, a frequency characteristic that is possibly confused with the information (“As an option, the sub-frame may undergo a filtering scheme to partially remove noise contributed by the original image in order to further enhance detection reliability of the watermark. This noise abatement filtering scheme involves subtraction of a computed local mean signal value of pixels within the frame (1030).”, column 9, line 43.).

Art Unit: 2609

It would have been obvious at the time the invention was made to one of ordinary skill in the art to teach an image processing method wherein the predetermined process eliminates, from frequency characteristics of the image data, a frequency characteristic that is possibly confused with the information as taught by Macy et al. "...to partially remove noise contributed by the original image in order to further enhance detection reliability of the watermark", Macy et al., column 9, line 44.

7. **Claim 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamura (US 2002/0104003 A1) and Miyake (US 2001/0028726 A1).

Regarding **claim 5**, while Iwamura discloses an image processing method for adding information to image data ("...a digital watermark processing apparatus...", paragraph [0019], line 3 wherein the information is a digital watermark), comprising:

altering a process for adding the information in accordance with characteristics the output means of the image data (refer to reference cited in claim 2 wherein the output means of the image data is a printer), Iwamura does not teach altering a process for adding the information in accordance with characteristics of at least one of output means of the image data AND input means of the image data.

Miyake teaches an image processing method ("...an image processing method and a storage medium therefor, capable of precisely extracting, from an image in which predetermined information is embedded...", paragraph [0024], line 2) altering a process in accordance with

Art Unit: 2609

characteristics of at least one of output means of the image data and input means of the image data (“The resolution of the scanner to be used is preferably equal to or larger than the resolution of the printer to be used for preparing the print. In order to precisely read the dot information of the print, the scanner is naturally required, based on the sampling principle, to have a resolution at least equal to twice of the resolution of the printer. However, the presence of dot can be identified to a certain extent, though not precisely, if the resolution of the scanner is at least equal to that of the printer. In the first embodiment, for the purpose of simplicity, the resolution of the scanner is assumed to be equal to that of the printer.”, paragraph [0089], line 2. In this case, the output means is the printer and the input means is the scanner wherein the scanner selected for the process is dependent on the resolution of the printer.).

In essence, the method carried out by Iwamura as disclosed in claims 1 and 2 would determine the frequency from which watermark would be embedded based on frequency components lost by the printer during printing (this is the characteristic of the output means of the image data). The method carried out by Miyake as disclosed would determine the scanner used based on the resolution of the printer ensuring that the scanner selected is at least twice the resolution than the printer (this is the characteristic of the input means of the image data). The process would be altered every time due to alternate printers in the embodiment.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to alter a process for adding the information in accordance with characteristics of at least one of output means of the image data and input means of the image data as taught by Miyake

Art Unit: 2609

“...in order to precisely read the dot information of the print...”, Miyake, paragraph [0089], line 4.

Regarding **claim 6**, while Iwamura discloses the output means selected by selection means (“The user can access the server 602 from the user terminal 603 via the network 601 and issues a request to print a desired thumbnail image using a desired printer (printer 604 (A) in this case).”, paragraph [0166], line 1 regarding the sixth embodiment.) wherein , and a process for adding the information is performed in accordance with characteristics of the selected output means OR the selected input means (refer to claim 1 wherein the selected output means (printer) is selected for adding the information), Iwamura does not teach at least one of the output means and the input means is selected by selection means.

Miyake teaches an image processing method (“...an image processing method and a storage medium therefor, capable of precisely extracting, from an image in which predetermined information is embedded...”, paragraph [0024], line 2) the input means being selected by selection means (“A control unit 210 is composed of a CPU 211, a ROM 212, a RAM 213.”, paragraph [0060], line 1 in combination with FIG. 7 and the reference in claim 5.).

It must also be noted that the output means selected by a selection means and the input means selected by a selection means can in fact be the same apparatus with references cited above from both disclosures (e.g. such as a computer).

Art Unit: 2609

It would have been obvious at the time the invention was made to one of ordinary skill in the art to disclose an input means selected by selection means as taught by Miyake "...to precisely read the dot information of the print...", Miyake, paragraph [0089], line 4.

8. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamura (US 2002/0104003 A1) and Miyake (US 2001/0028726 A1) in further view of Sato et al. (US 6,390,598 B2

While the combination between Iwamura and Miyake discloses the image processing method according to claim 5, disclosing the possibility of the selection means being the same apparatus (refer to references cited in claim 5), and teaching a resolution of at least one of the output means and the input means selected by selection means (First, the resolution of the scanner is determined by the resolution of the printer as disclosed by Miyake by the selection means (refer to references cited in claim 5). Second, the resolution of the printer is determined by the selection means as disclosed by Iwamura (refer to references cited in claim 5), assuming that the network will consist multiple types of printers, each with its own separate resolution.), the combination does not teach a tone pattern cycle and direction of at least one of the output means and the input means selected by selection means.

Sato et al. teaches an image processing method ("Accordingly, an object of the present invention is to increase image quality without excessively decreasing printing speed.", column 2, line 23) wherein a resolution ("Resolution conversion module 97 has the role of converting the

Art Unit: 2609

resolution (in other words, the pixel count per unit length) of the color image data handled by application program 95 to resolution that can be handled by printer driver 96.”, column 5, line 44), AND a tone pattern cycle and direction of at least one of the output means and the input means are selected by selection means (The output means is the printer reference numeral 20 and input means in the scanner reference numeral 80 as shown in FIG. 2. The control circuit reference numeral 40 may be the same selection means from that disclosed by both Iwamura and Miyake (refer to the references cited in claim 5)).

Sato et al. discloses “nozzles” as the elements printing and scanning the dots as follows: “In order to attain the above and the other objects of the present invention, there is provided a method of printing by forming ink dots on a print medium. The printing method comprises the steps of providing a print head having a plurality of nozzles arrayed along a sub-scanning direction for ejecting same ink; allocating  $n(j)$  number of nozzles to a  $j$ -th main scan line in a selected area on the print medium where  $n(j)$  is an integer of two or more, the integer  $n(j)$  for some main scan lines being set at a different value from that for other main scan lines; positioning each of the  $n(j)$  number of nozzles on the  $j$ -th main scan line; and driving each of the  $n(j)$  number of nozzles, in response to given print data, to enable the nozzle to form dots intermittently at a rate of one in  $m \times q$  dot positions on the  $j$ -th main scan line during one main scan,  $m$  being an integer of 1 or more, and  $q$  being an integer of 2 or more, to thereby complete dot formation on the  $j$ -th main scan line with the  $n(j)$  number of nozzles during  $n(j)$  number of main scans.”, column 2, line 27.

Art Unit: 2609

According to Sato et al., the tone pattern cycle and tone pattern direction are the nozzle pattern cycle: "When sub-scan feed amount L gets greater, a nozzle pattern cycle gets longer.", column 17, line 43 and direction "At the right side of FIG. 5(A) is shown the ordinal number of the nozzle that records dots on each raster line. With the raster lines drawn by a dotted line extending in the right direction (main scan direction) from the circles that indicate the sub-scanning direction position of the nozzles, at least one of the raster lines above or below this cannot be recorded, so in fact, dot recording is prohibited.", column 7, line 58.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to disclose a tone pattern cycle and direction of at least one of the output means and the input means selected by selection means as taught by Sato et al. "...to increase image quality without excessively decreasing printing speed.", column 2, line 23.

9. **Claims 8 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamura (US 2002/0104003 A1) and Miyake (US 2001/0028726 A1) in further view of Trelewicz et al. (US 6,912,674 B2).

While the combination between Iwamura and Miyake discloses the image processing method according to claim 5, further disclosing the possibility of the selection means being the same apparatus (refer to references cited in claim 5), the combination does not further comprise: printing out a test pattern in advance by output means that is used; reading the test pattern by input means; and altering a process for adding the information in accordance with a result of reading.

Art Unit: 2609

Trelewicz et al. teaches an image processing method ("...a method triggers a printer to initiate an embedding algorithm...", column 1, line 44) comprising:

printing out a test pattern in advance by output means that is used ("A number of events may trigger the process to begin. For example, the printer 106 may be configured to run a self-analysis application at certain time intervals. Alternatively, a customer or technician could be experiencing problems with the printer and manually requests a test page to be printed by pushing a "test page" button.", column 4, line 64.);

reading the test pattern by input means ("The printed data may later be scanned, run through analysis software, and the embedded data is returned. The embedded data can then be used to diagnose printer problems or to serve as a digital notary.", column 1, line 48.); and

altering a process for adding the information in accordance with a result of reading ("The controller/processor unit 208 encodes this information, at step 306 and inserts it into the page to be printed by one of several methods. There are two basic methods of embedding data, which may be used independently of each other, or in combination. In the first method, the pels themselves may be modified, through the addition or subtraction of pels near existing pel groupings in the image, for which there is existing technology on the method of embedding so that the perceptual print quality is not affected. In the second, the printer 106 may make selective use of toners or inks 212 with different properties e.g., a toner or ink 212 with detectable magnetic properties may be used in specific areas, so that the appearance of the print is unchanged, but a magnetic scanner will be able to detect the underlying pattern.", column 3, line 60. Since there exists multiple methods for adding the embedded data before printing, it is

Art Unit: 2609

inherent that reading the result may in itself conclude the need for another method for adding the embedded data.).

It would have been obvious to one ordinary skilled in the art the time the invention was made to teach an image processing method comprising: printing out a test pattern in advance by output means that is used; reading the test pattern by input means; and altering a process for adding the information in accordance with a result of reading a taught by Trelewicz et al. so that “The embedded data can then be used to diagnose printer problems or to serve as a digital notary.”, Trelewicz, column 1, line 50.

Regarding **claim 9**, while the combination between Trelewicz et al., Miyake, and Iwamura discloses the image processing method according to claim 8, the combination does not teach wherein the test pattern is a patch or a tone pattern, which includes at least an intermediate level.

Trelewicz et al. discloses an image processing method (“...a method triggers a printer to initiate an embedding algorithm...”, column 1, line 44) that teaches a test pattern as a patch or a tone pattern (refer to reference cited in claim 8, in specific “...selective use of toner...” which reads on “tone pattern”), which includes at least an intermediate level (refer to reference cited in claim 8, in specific “...with detectable magnetic properties may be used in specific areas...” which reads on “at least an intermediate level”).

It would have been obvious to one ordinary skilled in the art the time the invention was made to teach wherein the test pattern is a patch or a tone pattern, which includes at least an

Art Unit: 2609

intermediate level as taught by Trelewicz et al. "...to detect the underlying pattern.", column 4, line 6.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached on 7:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



BRIAN WERNER  
SUPERVISORY PATENT EXAMINER



DPR  
David P Rashid  
Examiner

Art Unit: 2609

Art Unit 2112